# SPECIAL AREA MANAGEMENT PLANS AND COASTAL RESILIANCE


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Executive Director

Coastal Resource Management Council

State of Rhode Island

COASTAL RESOURCES MANAGEMENT COUNCIL

CRMC

COASTAL RESOURCES MANAGEMENT COUNCIL

## Powers and Duties of the CRMC

Continual planning and management of the state’s coastal resources

Development of plans , policies, and regulations  necessary to implement its management program

Dredge Management Coordinator for the state

Aquaculture Coordinator for the state

Coastal Management Coordination and Research

Normal operations- enforce CRMP, issue modify, deny, permits

Designation of state right of ways

Habitat Restoration

Biosecurity Board

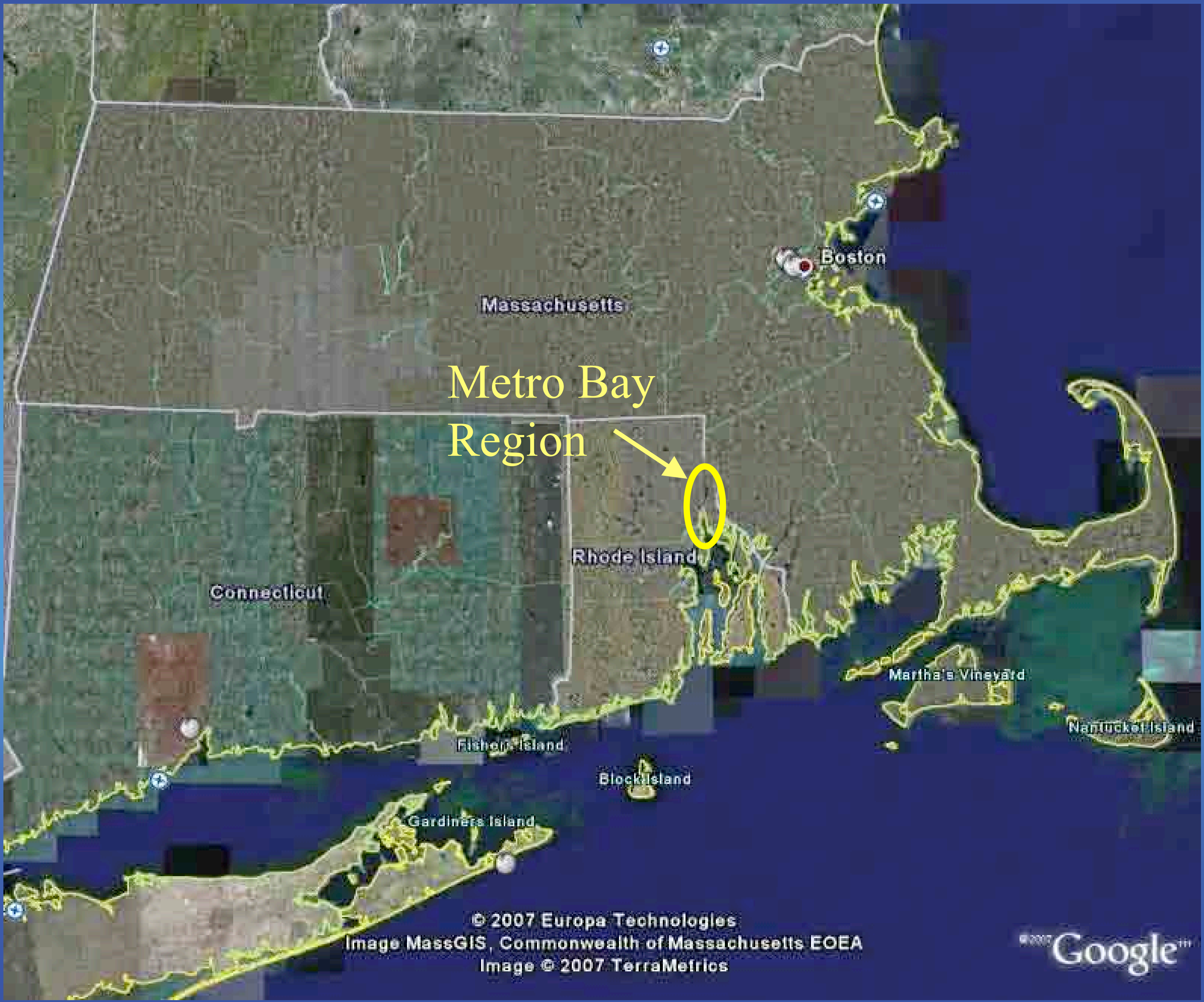
Massachusetts
Boston
Metro Bay
Region
Rhode Island
Connecticut
Martha's Vineyard
Nantucket Island
Fishers Island
Block Island
Gardiners Island
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Image MassGIS, Commonwealth of Massachusetts EOEA
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# CRMC Special Area Management Plans

# What is a SAMP?

**A SAMP is a ecosystem management plan based on:**

- **salient issues that are tailored to the region**
- **synthesis of scientific knowledge**
- **government cooperation**
- **community participation**
- **regulations**
- **recommended actions.**
- **Federal Consistency**
- **Established as part of State and Federal law**

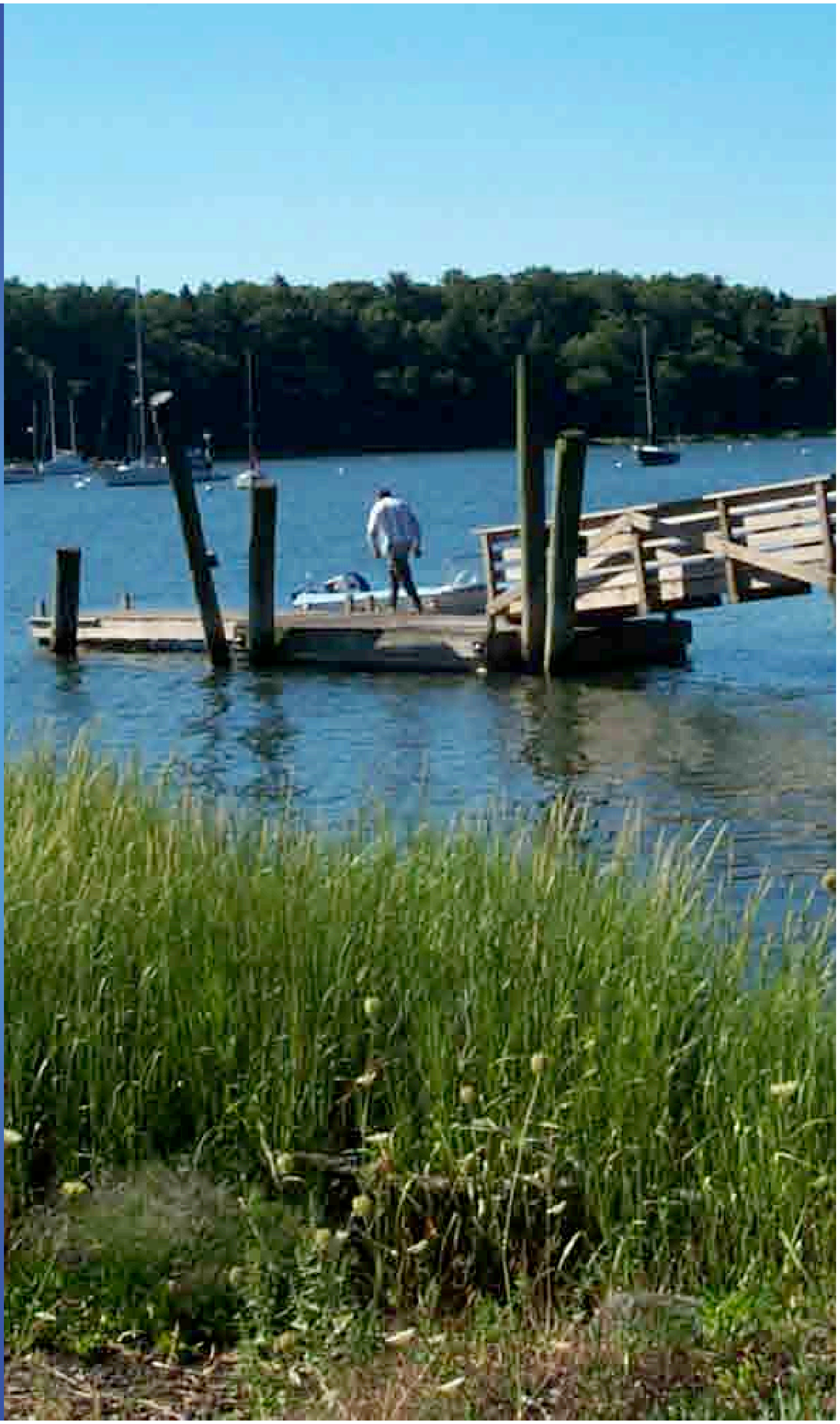



Photo by
Richard Benjamin
Urban Coastal Greenways
A New Approach For Buffers in the
Urban Coastal Environment
Rhode Island Coastal Resources Management Council
CRMC

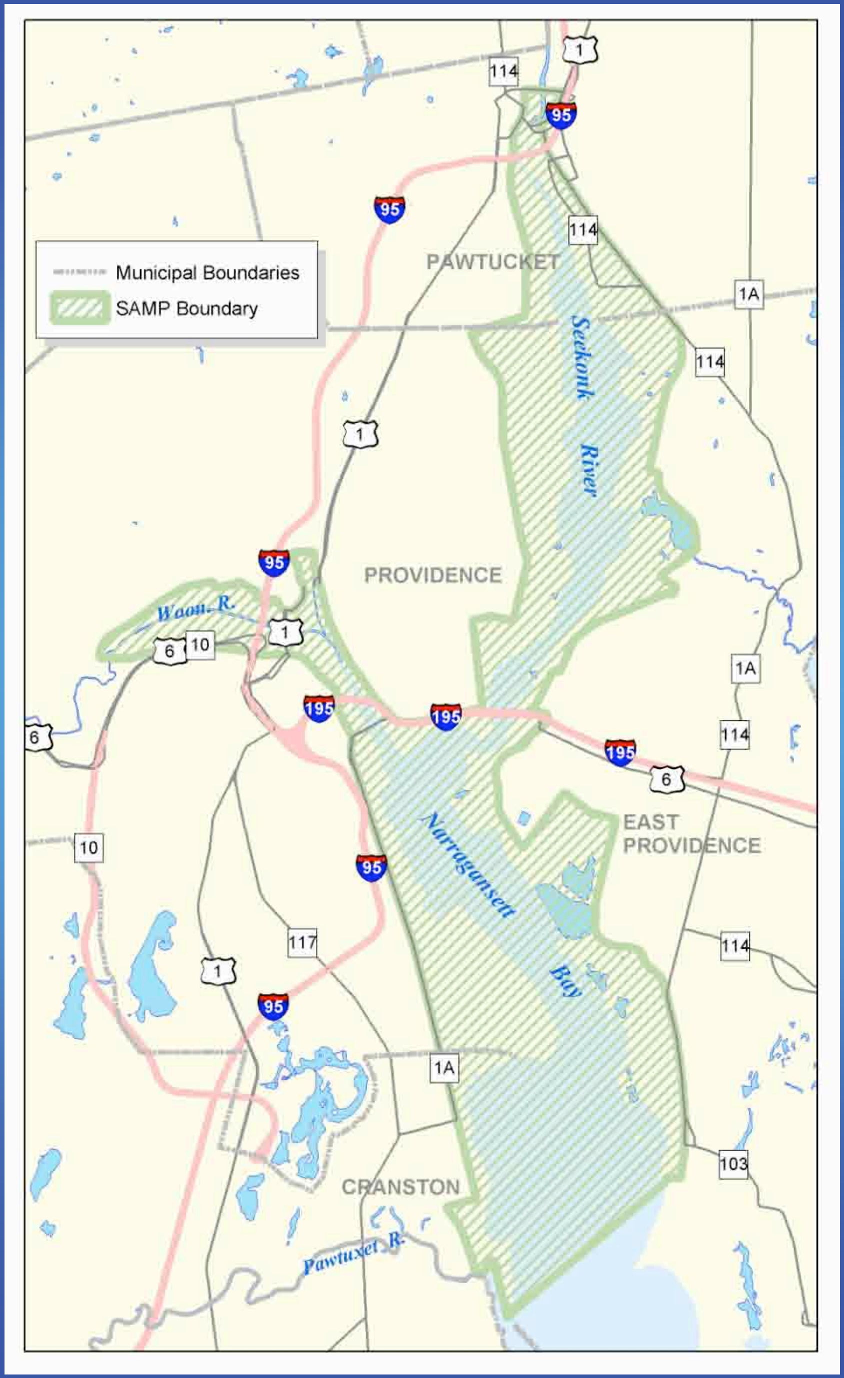
# Metro Bay Region SAMP Boundary

Cranston

Providence

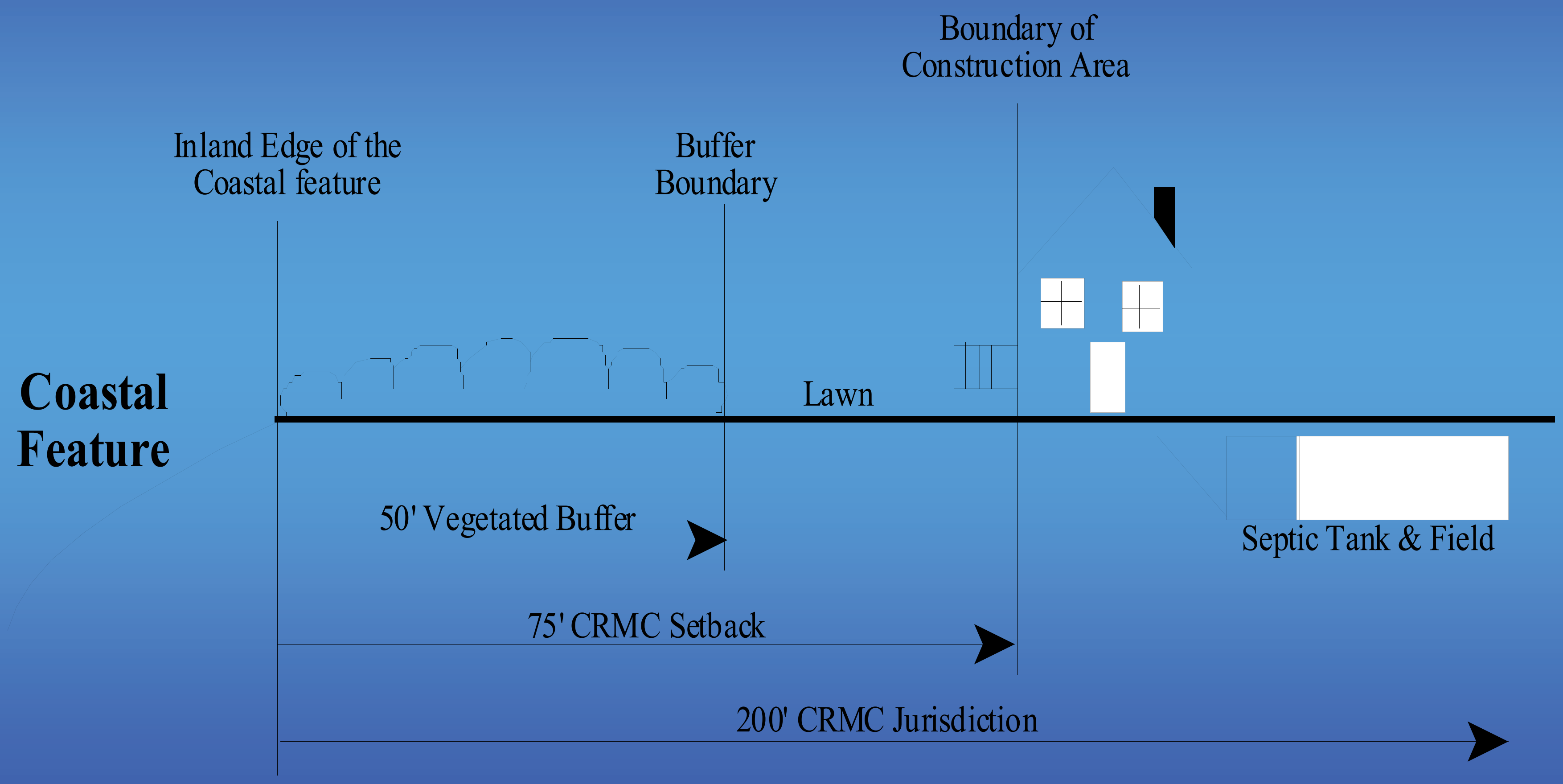
Pawtucket

East Providence



# Upper Providence River and Port of Providence

# RICRMP Section 150: Coastal Buffers



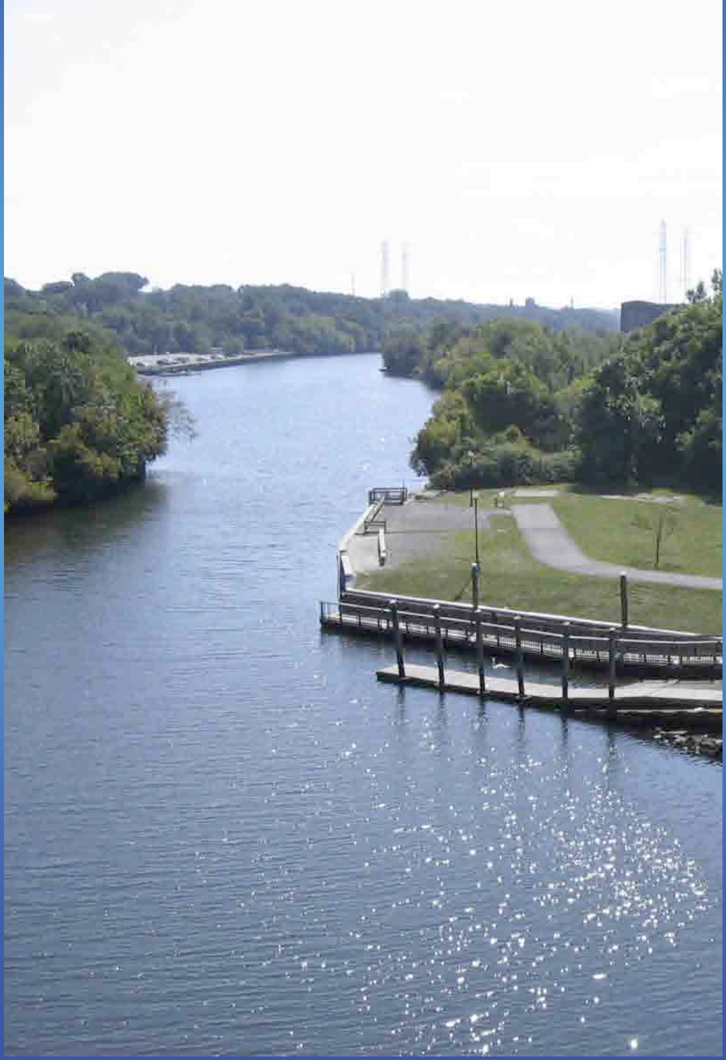
# CRMC Setback & Buffer Rules

## (Redbook Sections 140 & 150)

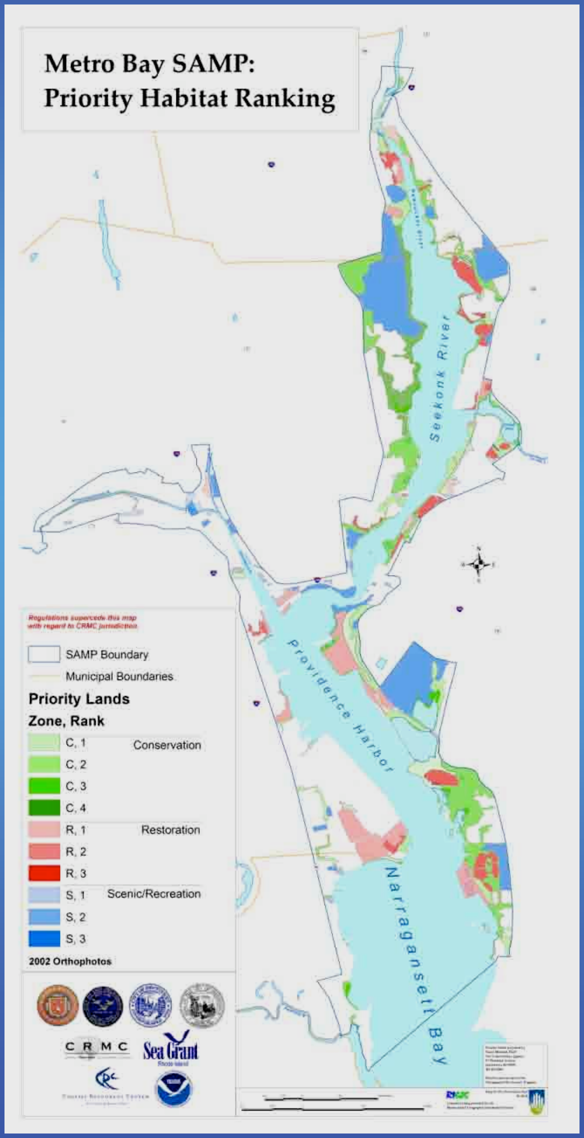
- Applies to large residential coastal lots
- Setbacks in the metro region range from 150 feet to 175 feet of undisturbed natural vegetation
- Buffer width based on lot size and water type
- Little to no buffer management allowed
- Variance is only option for reducing buffer… no Public Benefit from granting the variance

# The Challenge:
# A New Coastal Buffer Policy that...

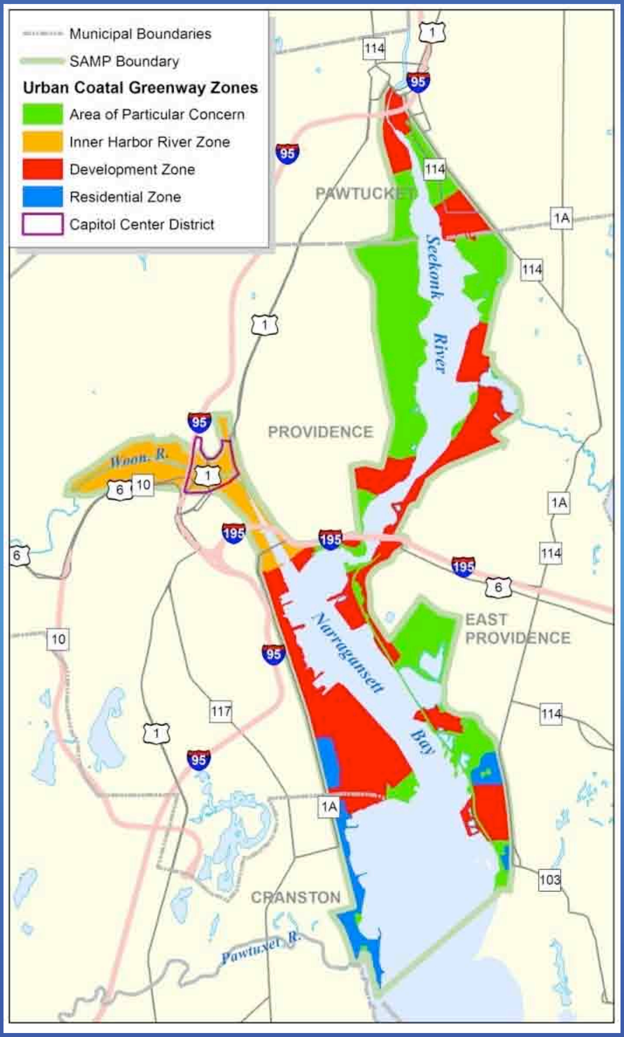
- Acknowledges constraints of coastal *urban* redevelopment.
- *Protects or restores* coastal habitat and natural storm buffers.
- *Streamlines* permitting while allowing *flexibility* in meeting regulatory requirements.
- Reduces variance requests and increases *public benefit*.
- Increases *consistency* and *predictability* of process.



# Multiple Data Set Analyses to Determine UCG Zones



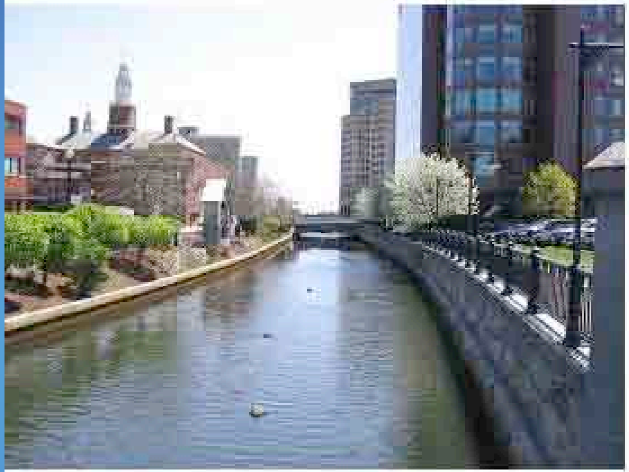


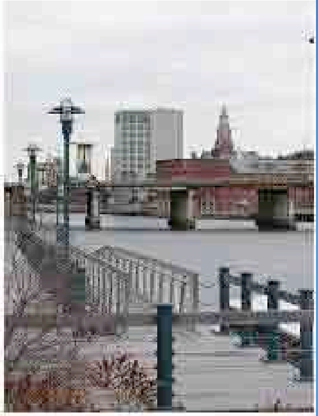


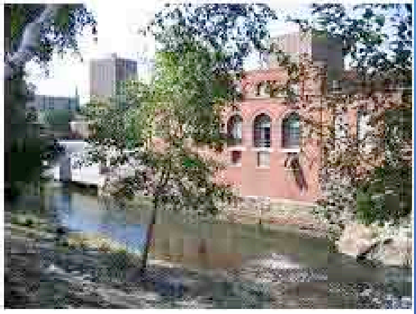
# Urban Coastal Greenways Policy

For the Metro Bay Region
Cranston, East Providence, Pawtucket, and Providence

**An Amendment to the Providence Harbor Special Area Management Plan**





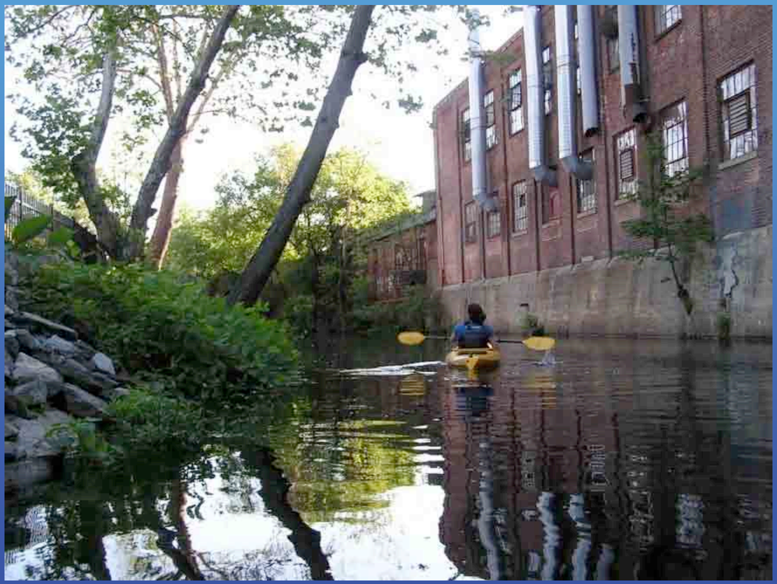


Adopted by the RI Coastal Resources Management Council
on October 10, 2006

CRMC

# Main Goals of the UCG Policy

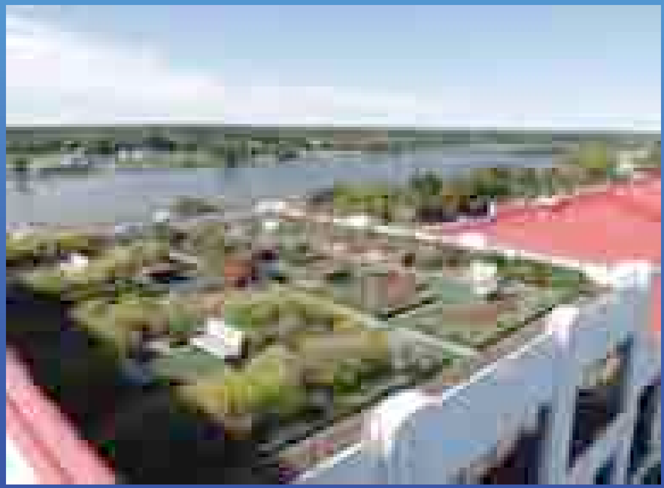
- 15% Vegetation of Entire Development Site
  - Sustainable Vegetation
- 100% Stormwater Management using LID
- Provide Public Access
- Flexible Greenway Widths
  - by UCG Zone
  - Exceptions for “Small Parcels”
  - Compensation Options (i.e., public amenities or habitat restoration fund)



# 100% Stormwater Management

- Onsite treatment of the water quality volume (first inch of stormwater runoff).
- Requirement for Low Impact Development (LID) practices (i.e., bioretention, filter strips, green roofs, etc.) and methods that support <u>infiltration</u> and <u>groundwater recharge</u>.

Source: Claytor 2005

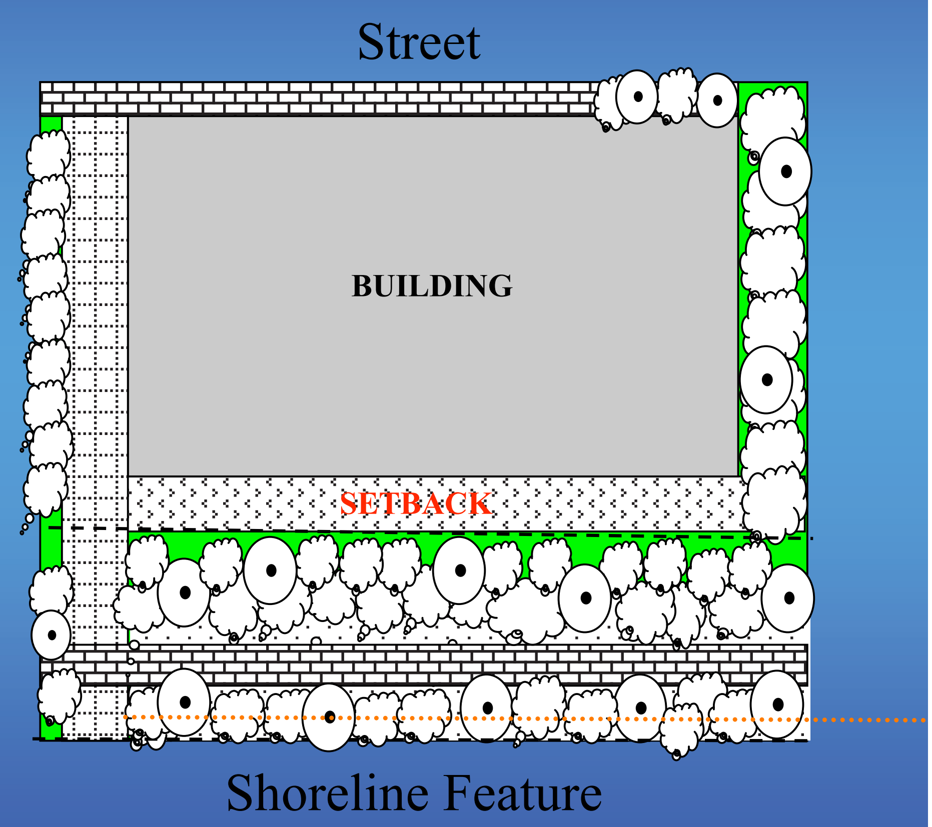


# LID and Climate Change

- Recent research examining impacts of climate change on rainfall depths (28-60% increase) demonstrated existing urban infrastructure (culverts) will be under-capacity by 35%
- There are 2 near-term achievable solutions:
  - Upgrade infrastructure--$$$$
  - Implement wide-scale LID requirements

# 15% Vegetation Requirement

- Sustainably landscaped.
- May include green roofs, rain gardens, landscaping elements, surface stormwater treatments, etc.
- “Appropriate mix” of trees, shrubs, & low-maintenance grasses.

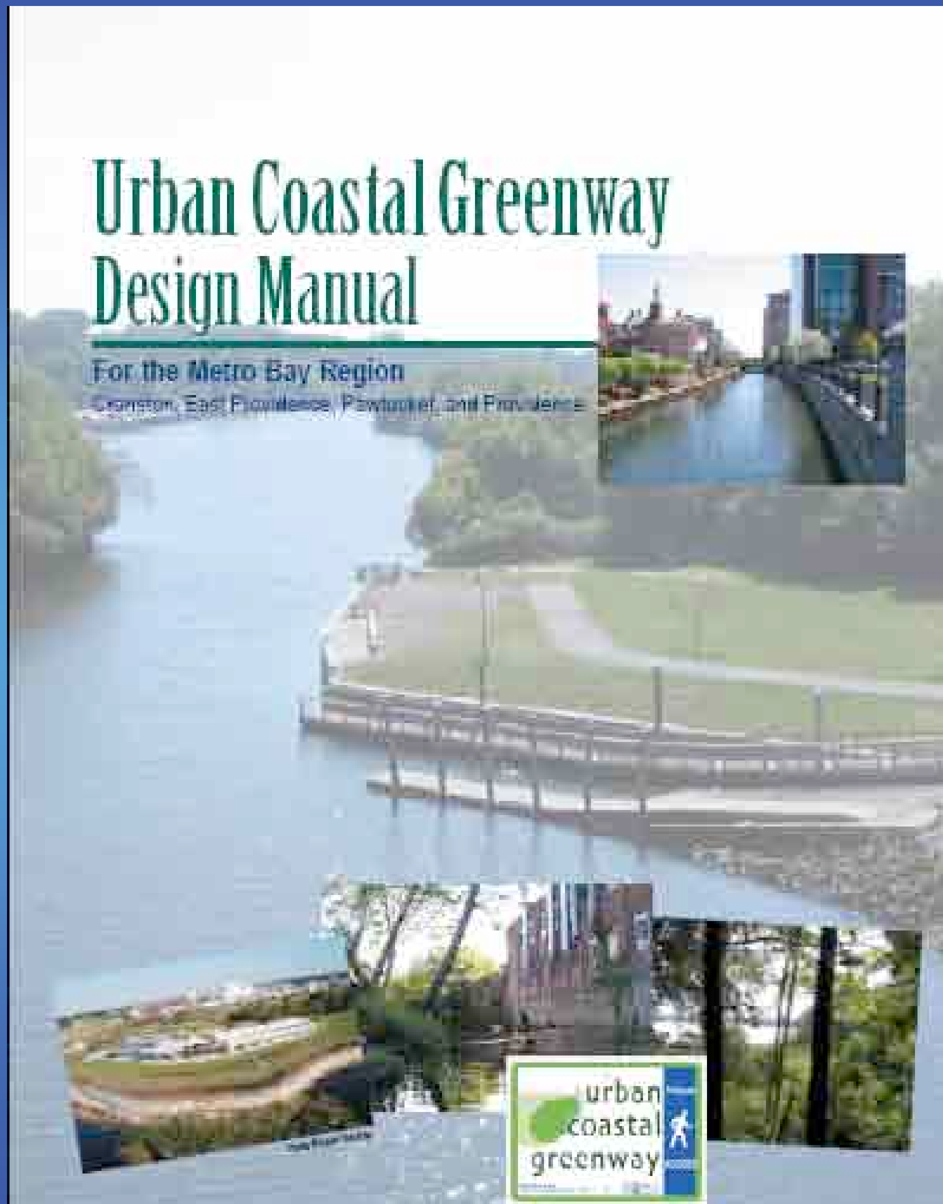


# Public Access

- Continuous alongshore access (minimum 8’ wide).
- Arterial (perpendicular) access connects public sidewalk to the alongshore access pathway.
- Pervious surfaces, supportive of emergency vehicles where necessary and ADA compliant.
- At least 2 parking spaces adjacent to access point and additional space/100’ linear feet of shoreline.


urban
coastal
PUBLIC
AMERICAN LOCOMOTIVE WORKS
urban
coastal
greenway
PUBLIC
ACCESS

**Projects Approved Under The UCG To Date Will Open Up 7050 New Linear Feet of Shoreline Some of Which Has Not Been Accessible since The Civil War.**

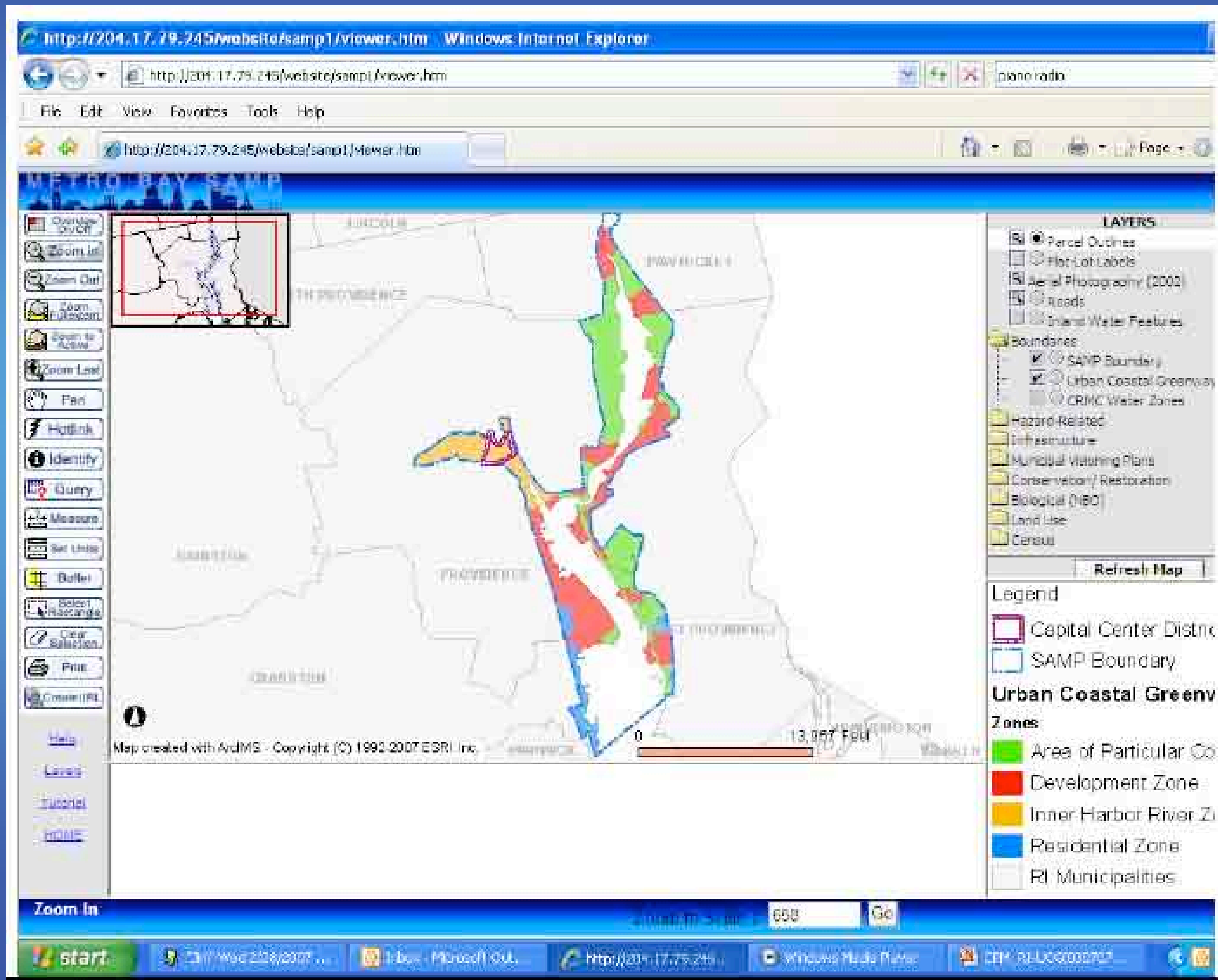

Urban Coastal Greenway
Design Manual
For the Metro Bay Region
Cranston, East Providence, Pawtucket, and Providence
urban
coastal
greenway

# Woonasquatucket River & Promenade District

**Recommendations for Management**

Part of the Metro Bay SAMP Plan

# Internet Map Service (IMS) Application



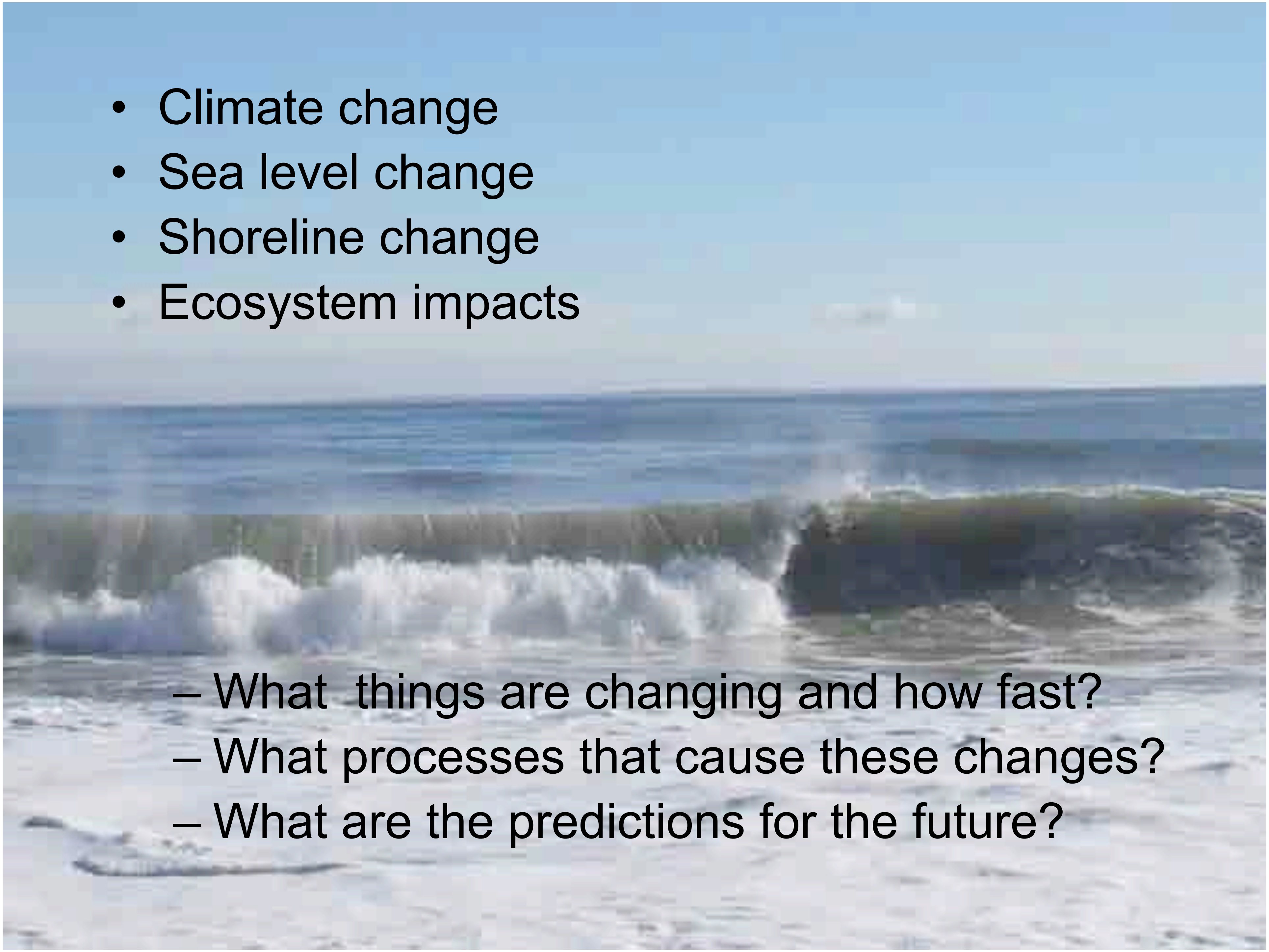
# Hurricanes impacting RI

| Storm Name (Date) | Date of Impact | Category |
|---|---|---|
| No name 1869 | Sep 8, 1869 | 3 |
| No name 1938 | Sep 21, 1938 | 4 |
| Carol | Aug 31, 1954 | 2 |
| Edna | Sep 11, 1954 | 2 |
| Donna | Sep 12, 1961 | 2 |
| Esther | Sep 21, 1961 | 3 |
| Gloria | Sep 27, 1985 | 2 |
| Bob | Aug 19, 1991 | 2 |
| Floyd | Sep 17, 1999 | Tropical Storm |

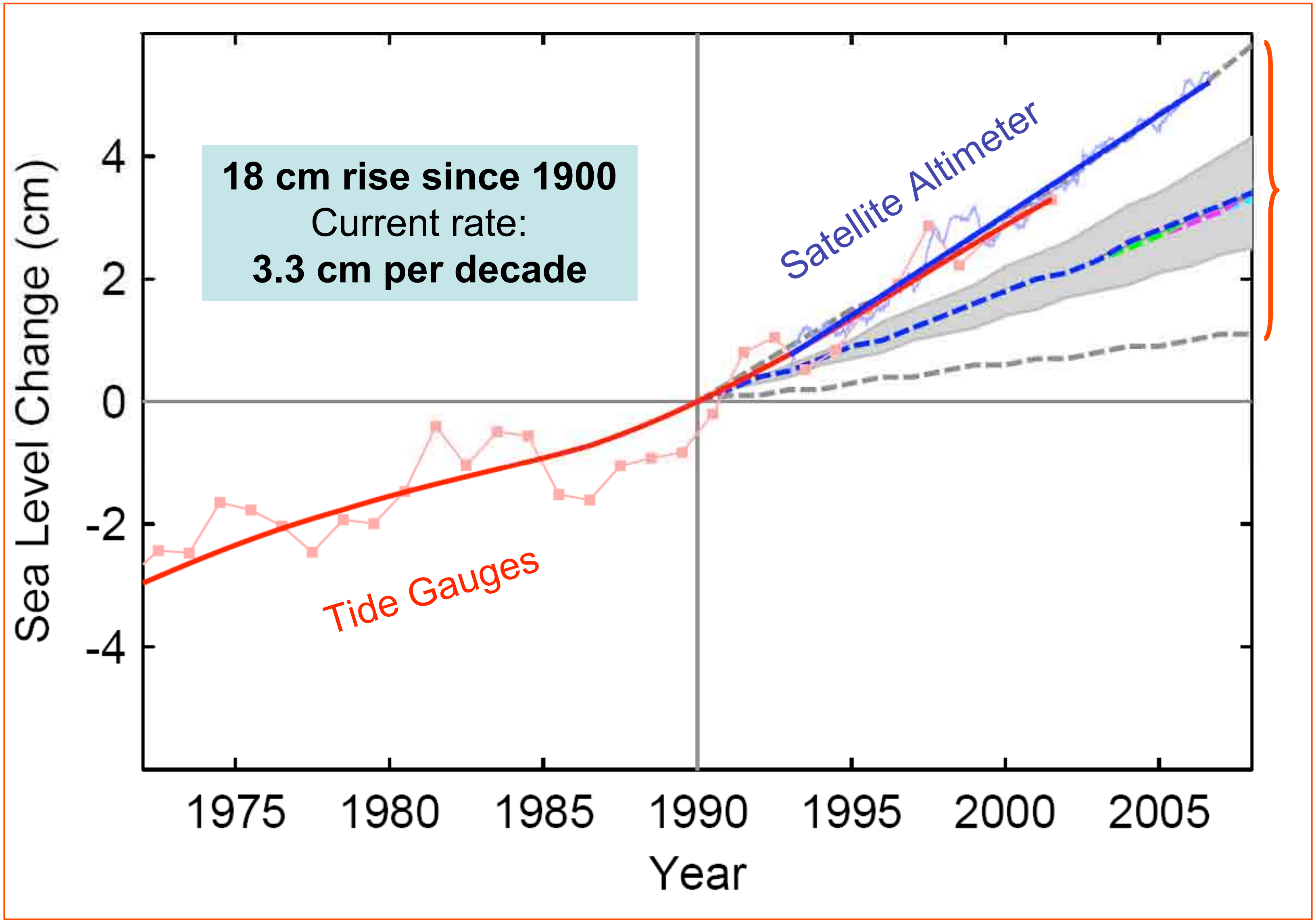
**At 4:45 p.m. the storm surge of the 1938 hurricane reaches the very heart of Providence, Rhode Island. Waves can be seen in front of the Biltmore Hotel (right building), while marooned pedestrians gather on the steps of Providence City Hall. *RIGHT*: Looking down Dorrance Street at the height of the hurricane. *(Photos Providence Journal 1940)*.**

# Metro Bay: "Achilles' Heel of the Northeast" (FEMA)


Surge Height 4.5 m (MLLW)

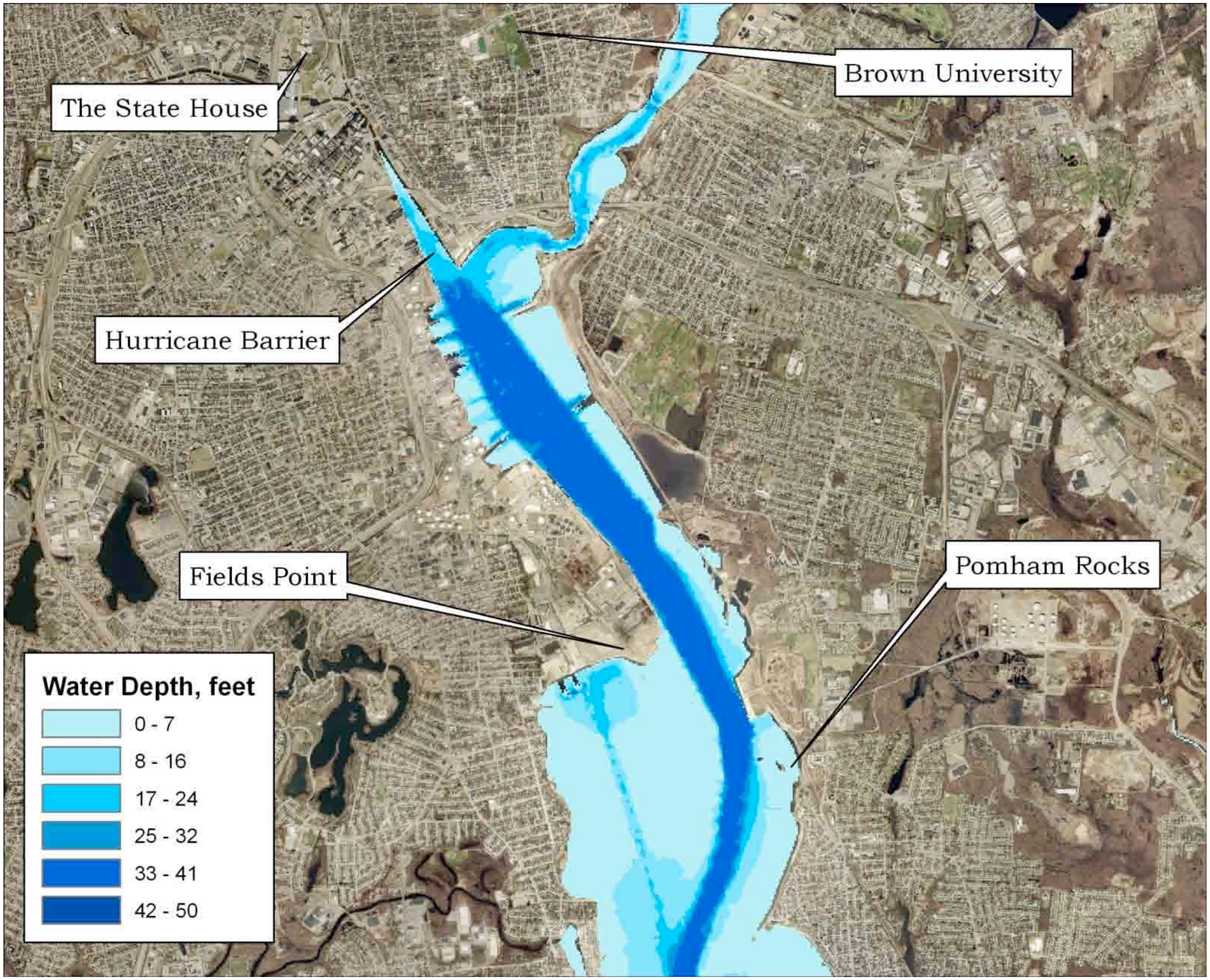

• Climate change
• Sea level change
• Shoreline change
• Ecosystem impacts
– What  things are changing and how fast?
– What processes that cause these changes?
– What are the predictions for the future?

# Observed Global Sea Level Rise

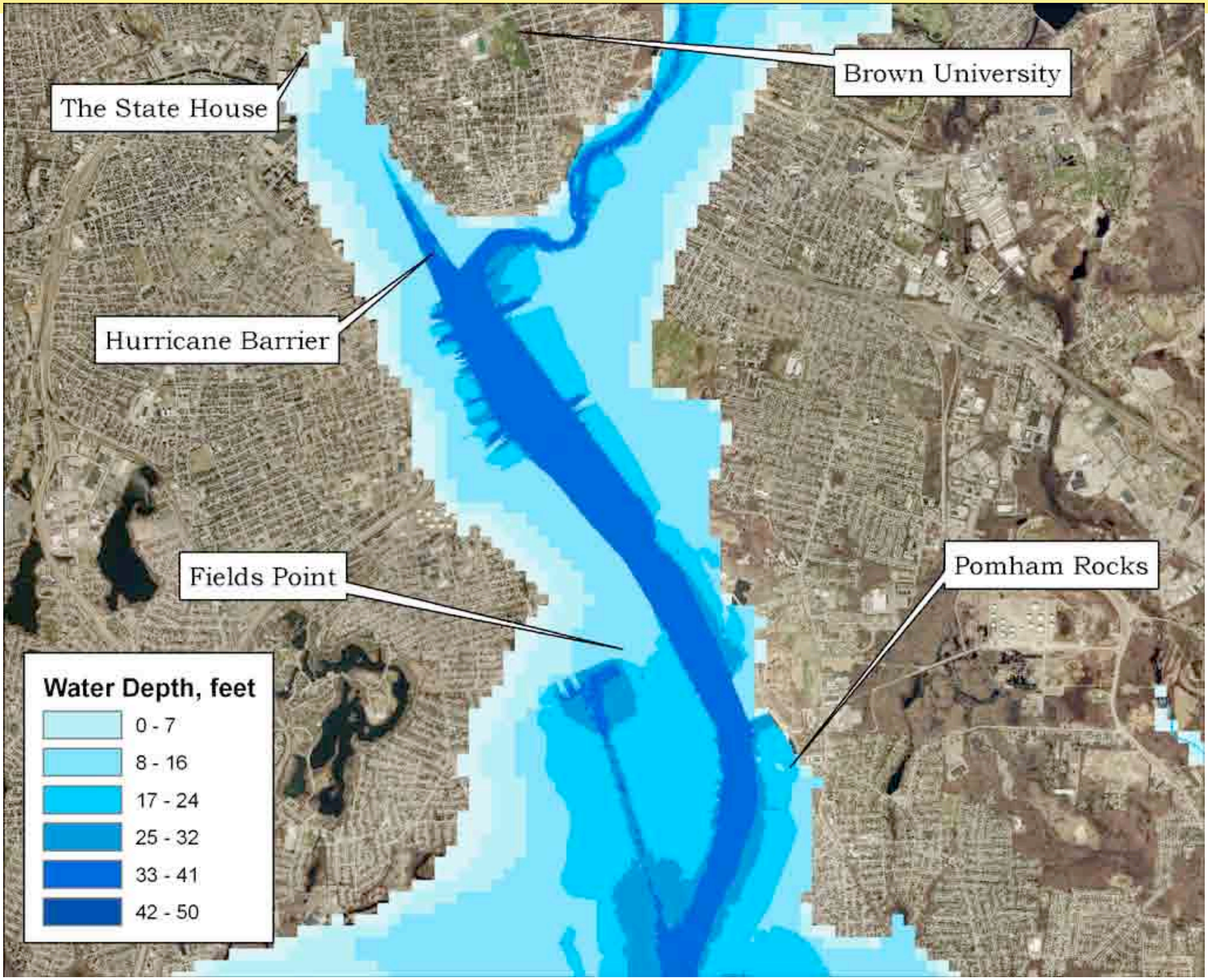



Rahmstorf, Cazenave, Church, Hansen, Keeling, Parker and Somerville (Science 2007)

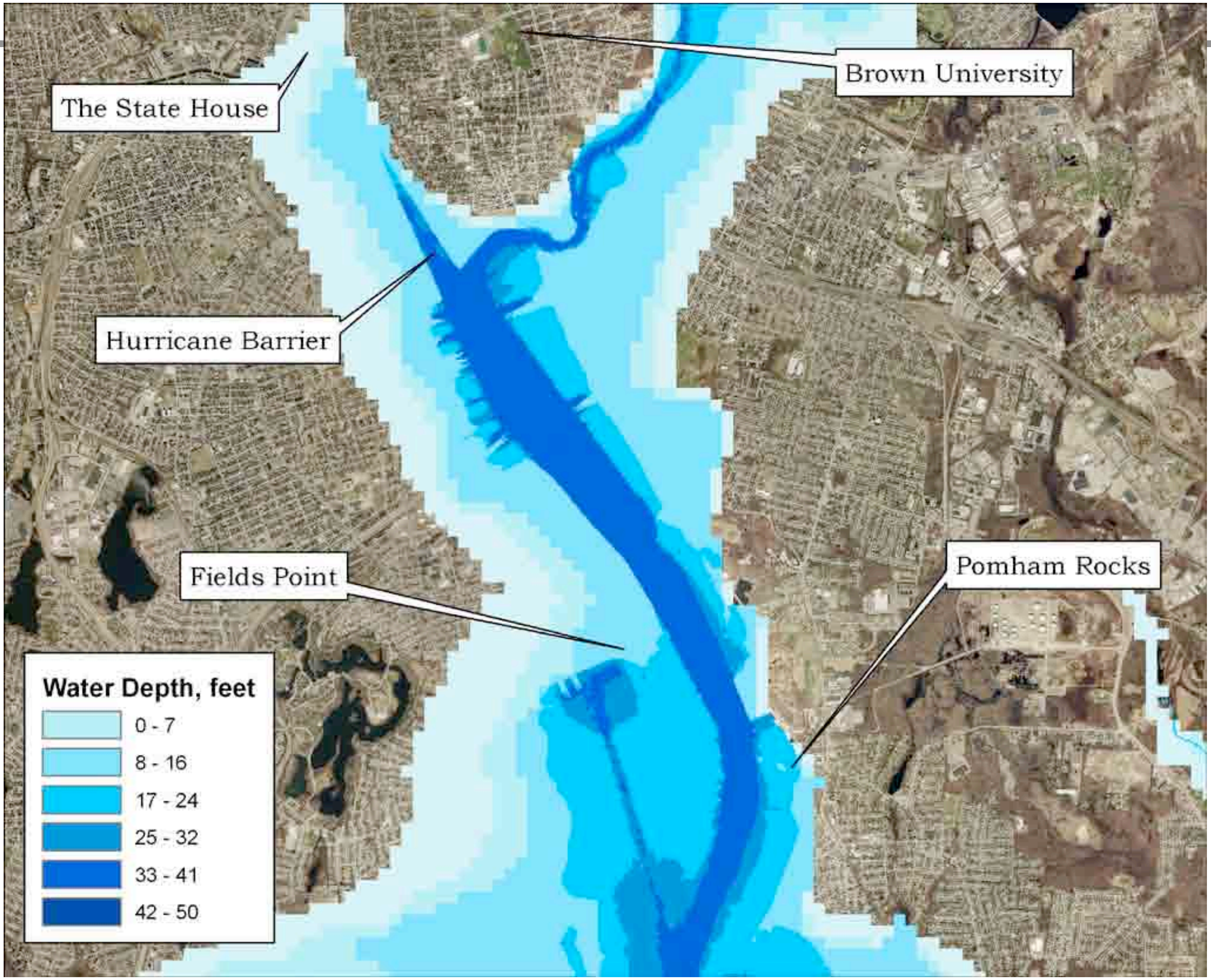
# Providence: present sea level



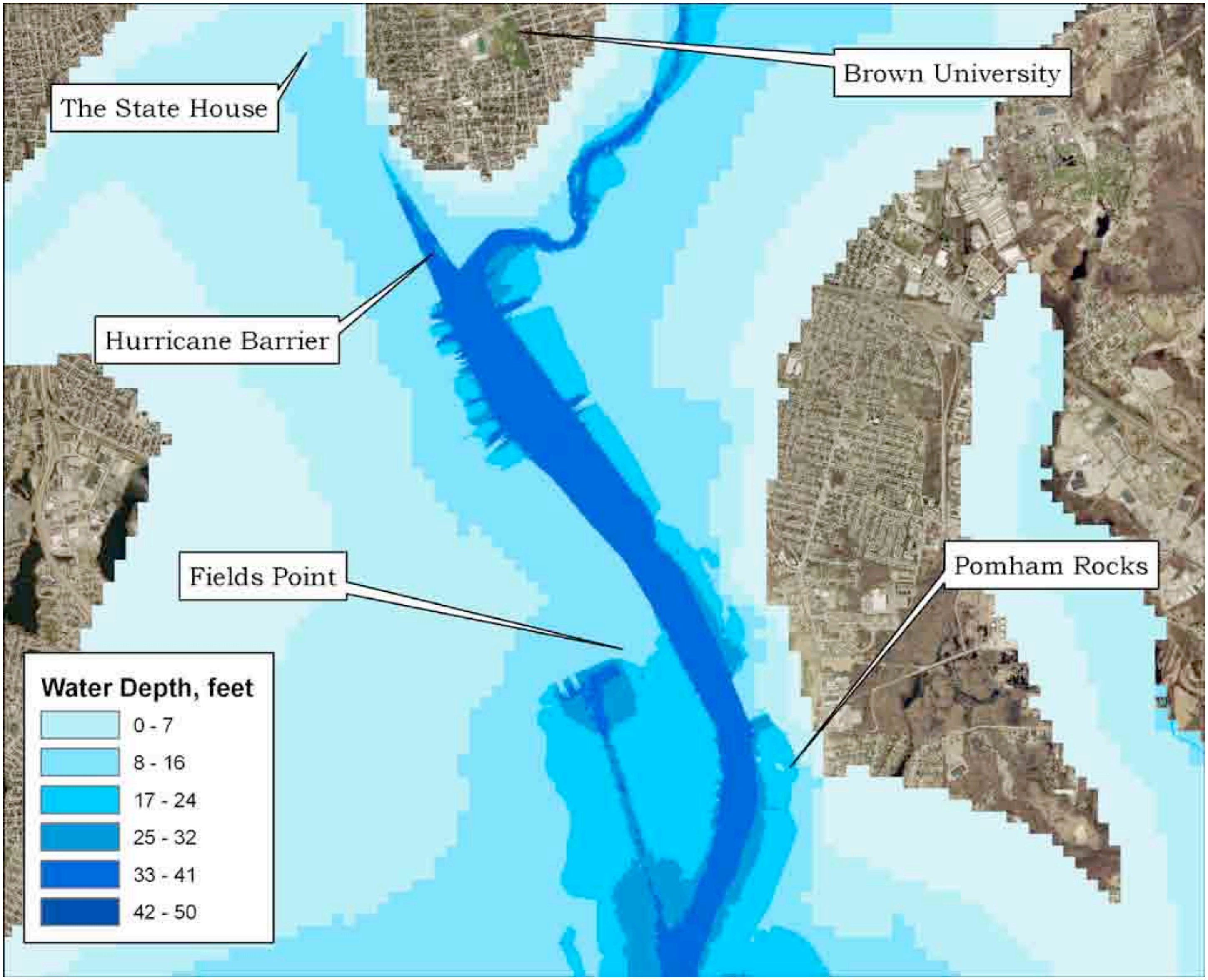
# Providence: 3 ft. sea level rise



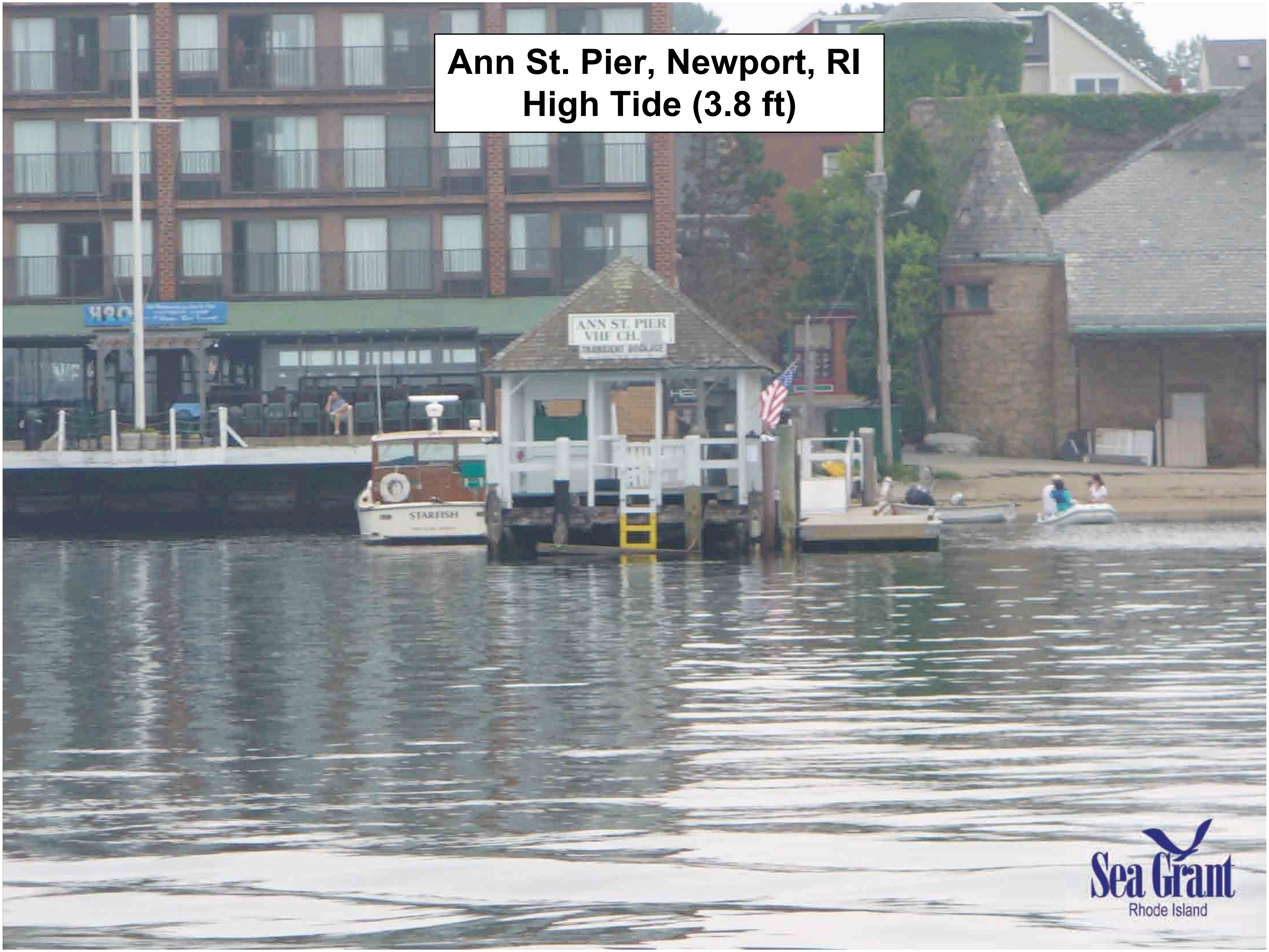
# Providence: 5 ft. sea level rise



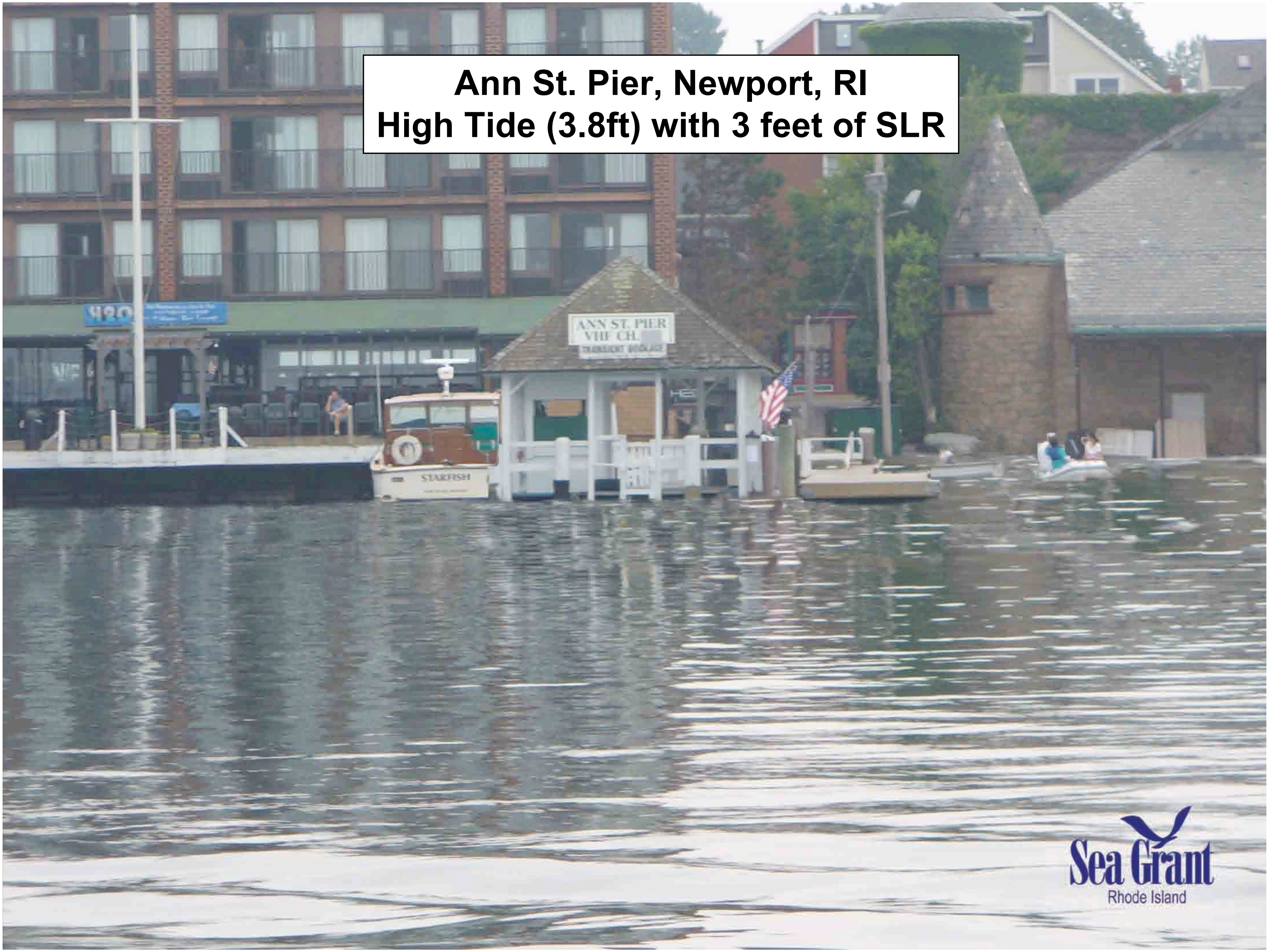
# Providence: 20 ft. sea level rise



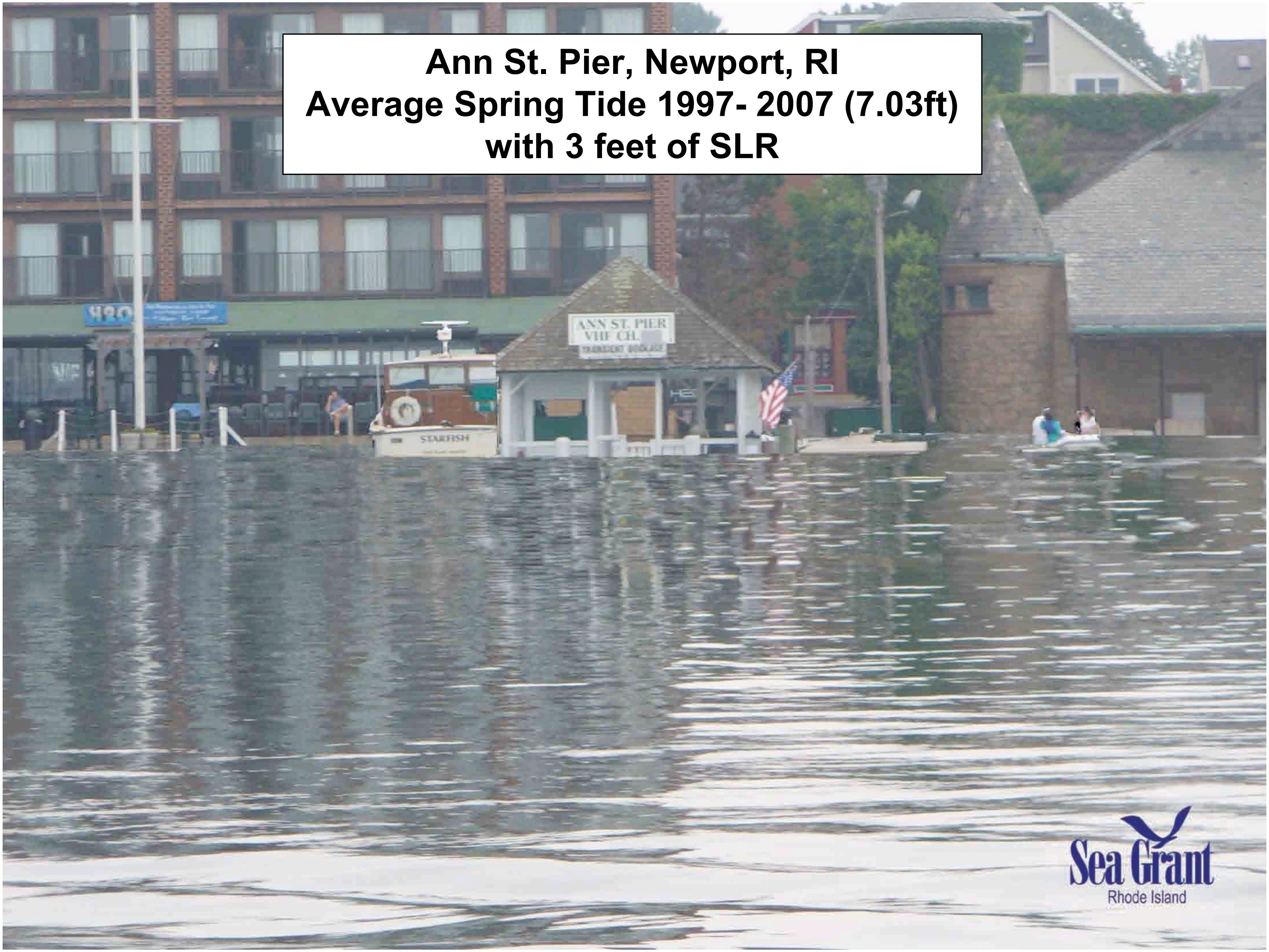
Ann St. Pier, Newport, RI
High Tide (3.8 ft)



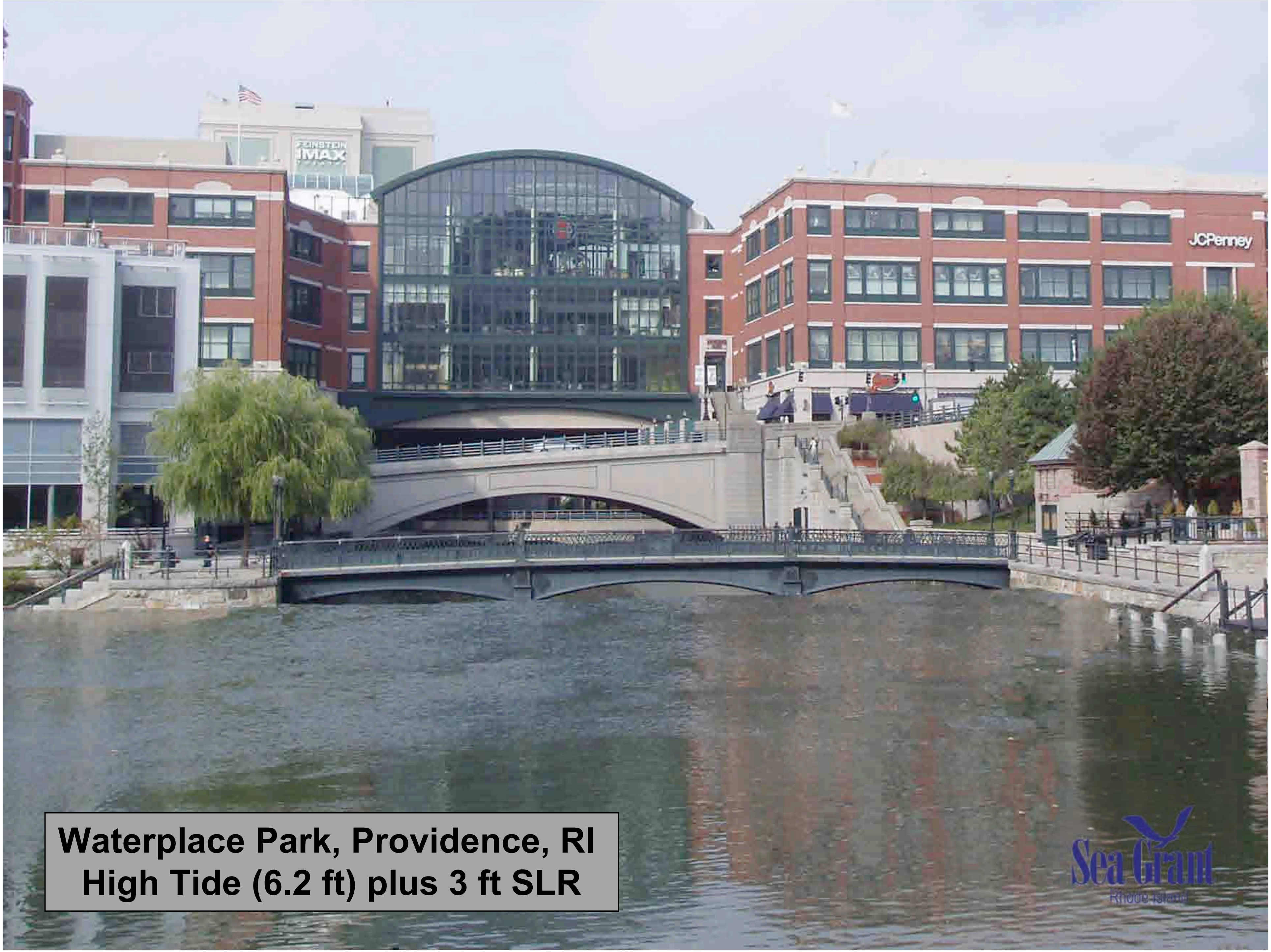
# Ann St. Pier, Newport, RI
# High Tide (3.8ft) with 3 feet of SLR



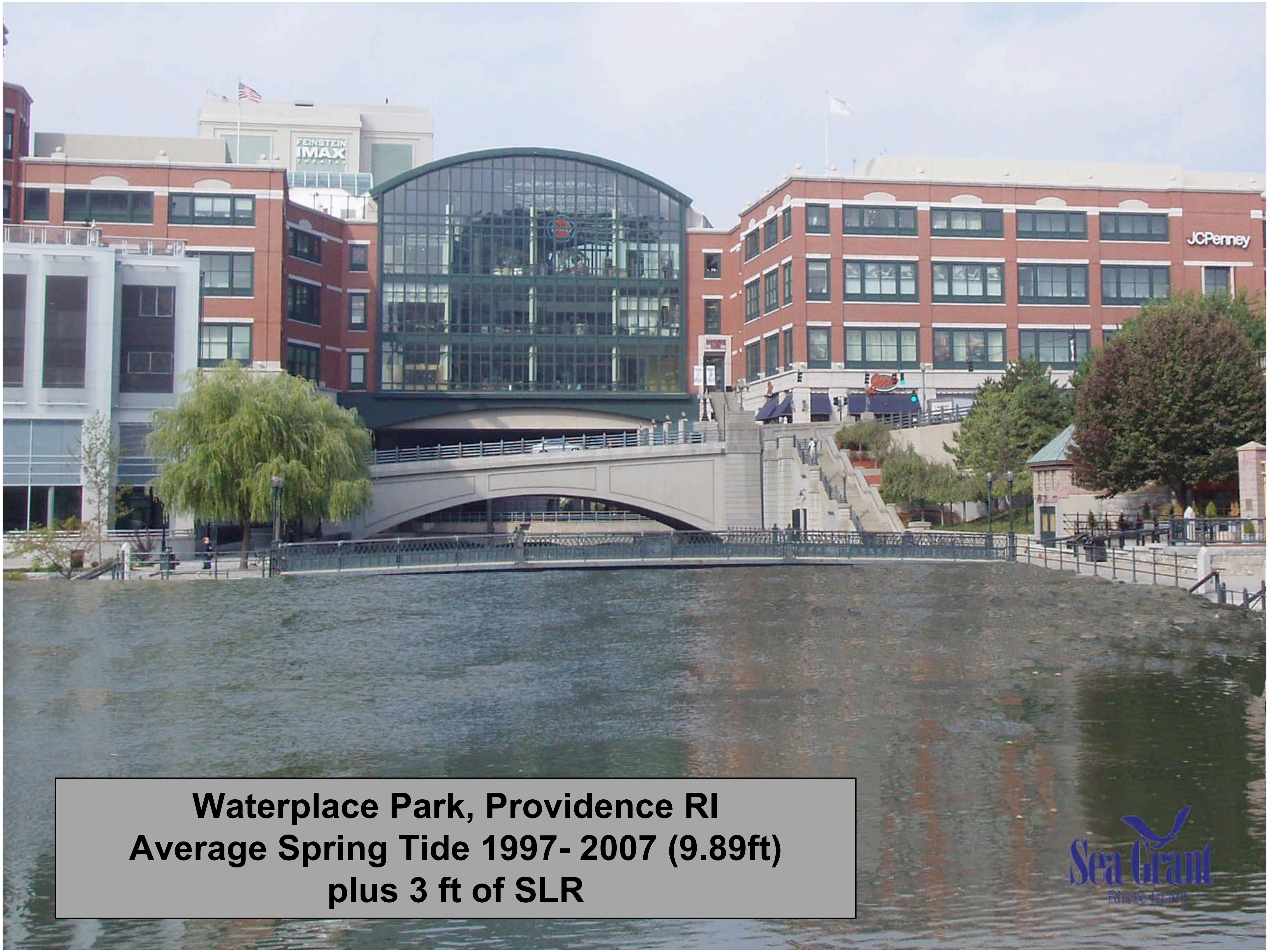
# Ann St. Pier, Newport, RI
# Average Spring Tide 1997- 2007 (7.03ft)
# with 3 feet of SLR




**Waterplace Park, Providence, RI**
**High Tide (6.2 ft)**

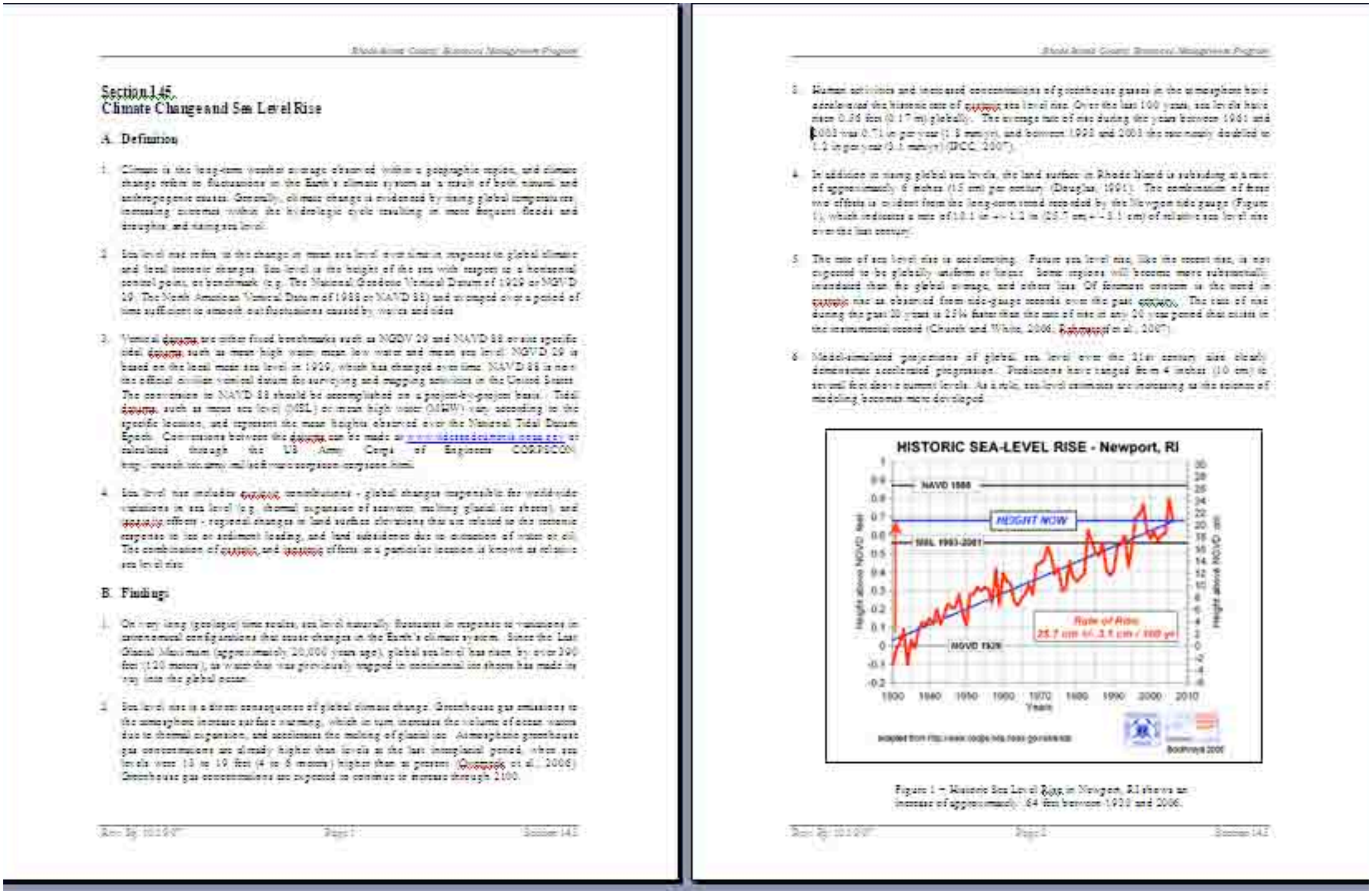



**Waterplace Park, Providence, RI**
**High Tide (6.2 ft) plus 3 ft SLR**




**Waterplace Park, Providence RI**
**Average Spring Tide 1997- 2007 (9.89ft)**
**plus 3 ft of SLR**

# Sea Level Rise Policy

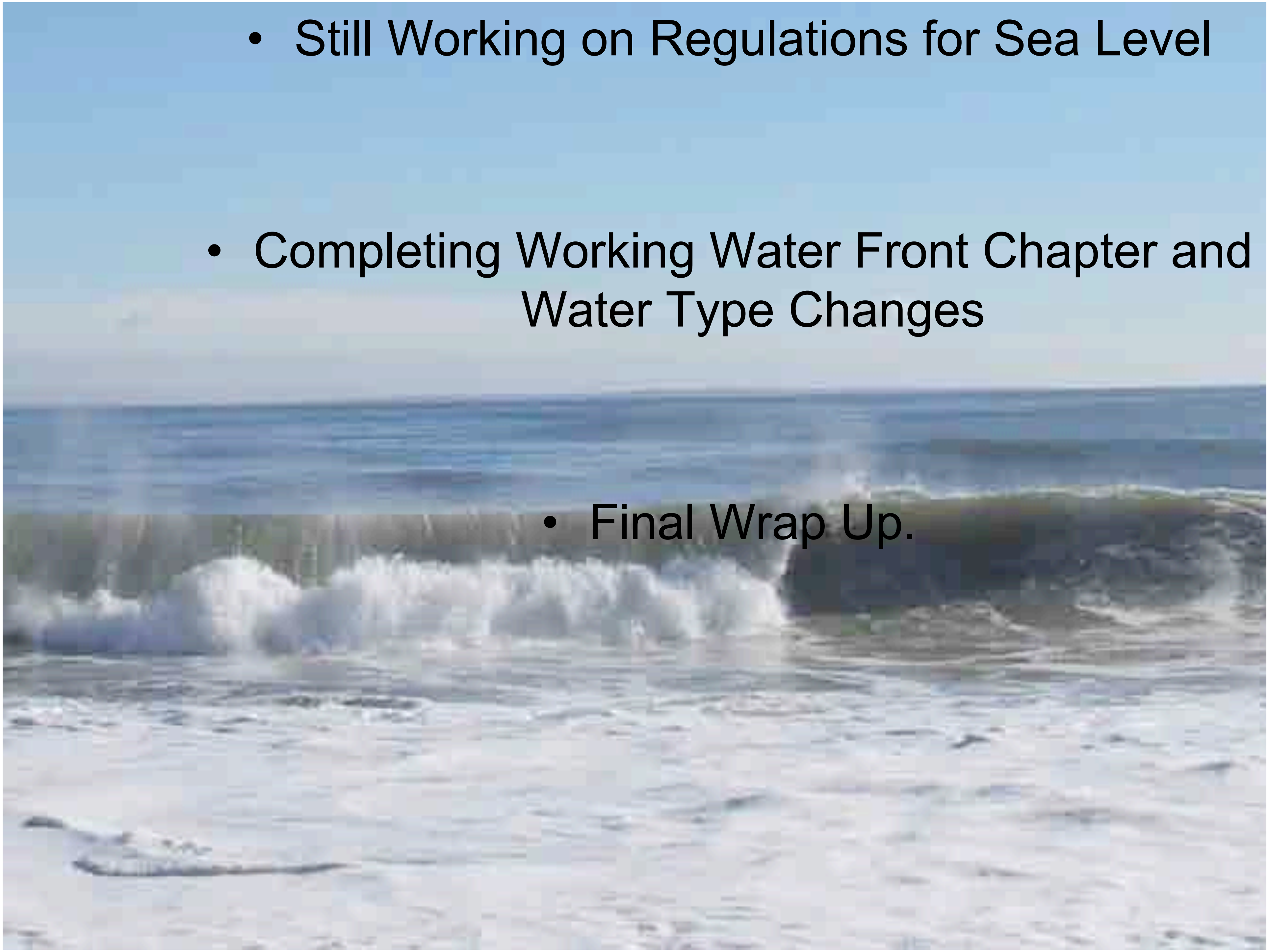


So What Did We Accomplish??

- Extensive Public Education and Input into programmatic changes
- Brought Federal, State, and Local Agencies together that normally did not interact on a host of issues.
- Supplemented Training of Local, State officials and Private Development interest in coastal construction standards in hazard area, and LID in Urban Areas
- Evaluated old regulations and developed radically new tools for handling development on the “Urban Edge”

- Through the Education and Public Participation Phase we built a constituency for the regulation changes.
- Produced new tools to help developers meet new regulations.
- Made changes were necessary in state program to support SAMP process.
- Convinced legislature changes were necessary to support climate change work
- URI Ocean Engineering Class did project on debris, sensitivity analysis on fill and flooding, CLOMR applicability and V Zone compression

# What Else Do We Need To Do?



- Still Working on Regulations for Sea Level
- Completing Working Water Front Chapter and Water Type Changes
- Final Wrap Up.